

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>UDC/27301</b>	<b>FOR FURTHER ACTION</b> <small>see Form PCT/ISA/220 as well as, where applicable, item 5 below.</small>	
International application No. <b>PCT/US2004/003716</b>	International filing date (day/month/year) <b>09/02/2004</b>	(Earliest) Priority Date (day/month/year)
Applicant  <b>TOYOTA INDUSTRIES CORP.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

**4. With regard to the title,**

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

**TRANSFLECTIVE DISPLAY HAVING FULL COLOR OLED BACKLIGHT**

**5. With regard to the abstract,**

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. With regards to the drawings,**

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2004/003716

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

Disclosed is a conventional organic light emitting diode (OLED) (156) having one reflective electrode in combination with a least one transparent OLED in stacked configuration functioning as backlighting in a transreflective display apparatus such as a liquid crystal display (LCD) (180). Preferably, at least two transparent OLEDs (154, 152) are arranged in a stacked configuration with one conventional OLED (156), each of the three OLEDs emitting light of a different bandwidth (161N, 161G, 161B). The reflective electrode (117) located behind the backlight also serves as a reflecting plate for the display. This arrangement enhances reflectivity and permits color sequencing in the transmissive mode, allowing all the components of a full color display (i.e. red, green, blue) to emit through the same pixel without the need for a color filter.

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H01L51/50 G02F1/13357

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H01L G02F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, COMPENDEX

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 1 378 787 A (TOYOTA JIDOSHOKKI KK) 7 January 2004 (2004-01-07) abstract paragraph '0022! paragraph '0053! - paragraph '0055! figure 6	1-43
Y	"ELECTRO-LUMINESCENT BACKLIGHT FOR COLOR DISPLAY" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 35, no. 2, 1 July 1992 (1992-07-01), pages 433-434, XP000313346 ISSN: 0018-8689 the whole document	1-7, 19-43
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

17 August 2004

Date of mailing of the international search report

03/09/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 420 031 B1 (FORREST STEPHEN R ET AL) 16 July 2002 (2002-07-16) cited in the application column 1, line 37 - column 2, line 16 column 10, line 33 - line 46 column 16, line 21 - line 35 figures 2A,2B	8-18
A	US 5 707 745 A (BURROWS PAUL EDWARD ET AL) 13 January 1998 (1998-01-13) column 4, line 20 - column 6, line 5 figure 2C	1-43
A	WO 01/42850 A (GUARD INC) 14 June 2001 (2001-06-14) page 3, line 23 - page 4, line 27 page 6, line 17 - line 26 page 14, line 22 - page 15, line 3 figure 5	1-43
A	EP 0 883 015 A (SUMITOMO CHEMICAL CO) 9 December 1998 (1998-12-09) column 13, line 10 - line 53 figures 2-4	17
A	EP 1 081 767 A (SEMICONDUCTOR ENERGY LAB) 7 March 2001 (2001-03-07) paragraph '0002! - paragraph '0008! paragraph '0046! paragraph '0051! paragraph '0155! - paragraph '0157! figure 2	1
A	US 2002/125822 A1 (RUTHERFORD NICOLE ET AL) 12 September 2002 (2002-09-12) paragraph '0062!	5,7,13, 41-43

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/003716

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